SLAC Activities Update

University of Wisconsin
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LZ Madison Group Meeting
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The Issue at Hand: allowing a file to dictate the field in our simulations

- The amount of S1 and S2 light created by recoils in Xenon are influenced by the magnitude of the Electric field at the location the recoil takes place.
- In LUXSim, currently the location where S2 light is created in the gas region is taken to be directly above the interaction location.
- Need to add field dependence into NEST and fastsim in order to accurately simulate events in the ever-changing fields in our detector.

Implementation Strategy

- Lucy has created maps that indicate the magnitude of the electric field and S2xy and drift time coordinates due to that field at points with 1mm spacing in the detector.
- There are already commands in place to take an external file with an electric field and include it in NEST, but from a different format.
  - Wei and I are modifying these functions to do what we want instead.
- We read the file in, then interpolate between the nearest points (currently in a Tetrahedron) then feed the Electric field value to NEST where it previously got its value from.
- Haven't begun to fix the S2 location problem yet, but should be similar, interpolate Lucy's S2xy and drift time positions instead of Electric field.